Commentary

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Yoga for Chronic Depressive Symptoms in Pregnancy: A Commentary and Call to Action

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Abstract

Women with depressive symptoms during pregnancy are in great need of safe, inexpensive, non-pharmacologic, accessible, and effective adjunctive therapies to enhance well-being, reduce the burden of symptoms both during their pregnancy and into the postpartum period, and prevent chronic sequelae. Because maternal depressive symptoms are associated with a variety of poor maternal-child outcomes (e.g., poor maternal health behaviors, suicide, poor maternal-fetal/child attachment, intrauterine growth restriction, adult-onset chronic illnesses in offspring, among others), a focus on adequate symptom management during pregnancy is an urgent clinical and research priority. Prenatal yoga is a promising modality which involves gentle physical activity, breathing practices, and relaxation practices that may empower women to self-manage symptoms, enhance well-being, and reduce symptom burden during pregnancy and into the postpartum period. Continued high-quality research is warranted which uses established theoretical frameworks and which builds on my team's and others' preliminary research studies which have demonstrated that pregnant women prefer to play an active role in symptom management and that they view prenatal yoga as an accessible, preferred form of mindful physical activity. Yoga for depression in pregnancy 3.

The 2012 Institute of Medicine report on "Living Well with Chronic Conditions" suggests that depressive symptoms carry great potential to threaten well-being, particularly if symptoms progress to further chronic illness or are comorbid with other chronic conditions Of great public health concern, pregnant women with chronic depressive symptoms face significant treatment challenges and depressive symptoms are associated with reduced adherence to prenatal care and poor health behaviours such as diminished physical activity [1]. Depressive symptoms are projected to be a leading cause of illness and disability in the world by 2030 [2,3].Nearly 20% of pregnant women experience depressive symptoms and 13% of pregnant women experience chronic, recurrent symptoms Of this large number of women experiencing depressive symptoms during pregnancy, the majority are experiencing depression as a chronic condition, rather than a new-onset occurrence [4-7]. Due to the often protracted, disabling nature of the symptom experience the adverse effects of depressive symptoms can significantly impact the mother as symptoms are associated with increased risk for poor adherence to prenatal care, preterm birth, suicide, substance abuse, and postpartum depression [4,8-15]. Depressive symptoms can undermine healthy maternal lifestyle behaviors such as physical activity (PA) [16-18]. Further, maternal depression can significantly alter maternal-fetal/child attachment, with potential future impact on emotional self-regulation of both mother and child [19-21]. In utero exposure to maternal depressive symptoms carries risks to the developing fetus; maternal symptoms are associated with poor infant outcomes including intrauterine growth restriction and child developmental delays [5,12,22,23]. Additionally, alterations in the intrauterine environment due to maternal depressive symptoms and the associated stress responses can affect the fetus via epigenetic pathways (environmentally-induced chemical modifications in DNA that affect gene functioning but not the underlying DNA sequence), which may increase the child's risk for the development of adult-onset chronic illnesses [24]. Yoga for depression in pregnancy 4.

Clearly, appropriate treatment of depressive symptoms in pregnancy is essential, yet many women find the "usual care" (UC; antidepressant medications and psychotherapy) insufficient to address their symptoms, or they are concerned about stigma, cost, and side effects [16,25-30].. Additionally, because commonly-used antidepressant medications, such as selective serotonin reuptake inhibitors cross the placental barrier, many women and clinicians are concerned about the currently unknown long-term impact of antidepressant exposure on the child [31].Findings from preliminary studies suggest that in utero exposure to SSRIs may result in abnormal epigenetic patterns which may put the child at risk for poor health in the future [32]. Thus, many women remain under- or un-treated due to the actual and perceived risks involved in pharmacological therapy during pregnancy [5]. Even with UC, a majority of individuals do not achieve partial or full symptom remission [33-37]. For example, one meta-analysis suggests only a 12-16% response rate to antidepressants in individuals with moderate to severe depressive symptoms with a slight improvement with the addition of other therapeutic modalities, such as cognitive-behavioral therapy [38]. Other studies have revealed that only 22% of individuals with moderate-severe symptoms receive adequate treatment11 and the majority of those treated with UC experience recurrences and/or discontinue treatment before achieving remission or response [3,39-41]. These findings underscore the need for additional, more acceptable and effective therapies.

There is an urgent need for adjunctive/alternative treatments for chronic depressive symptoms in pregnancy, particularly those which target prevention of relapse/ recurrence [36,37,42].Considerable literature supports PA as a therapeutic modality for depressive and related symptoms [43,44].Results from a Cochrane review and other meta-analyses suggest that PA has effects on depressive symptom

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management comparable to antidepressant medications and cognitive behavioral therapy[45,46]. However, individuals with depressive symptoms have reduced self-regulation and self-efficacy related to PA and report great difficulty following-through with PA behaviors [47,48]. Negative perseverative self-talk (ruminations), a hallmark symptom of depression in women, can lead to further Yoga for depression in pregnancy 5 reductions in PA and reinforce already low levels [49,50]. This is problematic because a depression-related sedentary lifestyle during pregnancy is associated with continued depressive symptoms, risk for poor pregnancy outcomes, and additional chronic illness [51]. These barriers to engaging in PA point to the importance of introducing a gentle and accessible form of PA in combination with methods to increase awareness of symptoms and self-efficacy for PA in pregnant women with depressive symptoms.

Gentle prenatal yoga, which combines physical practices, breathing practices, and relaxation practices, may be an appropriate form of lightactivity PA to manage depressive symptoms for a number of reasons. First, it is a commonly practiced PA modality in the United States and is generally easily available through in-person classes or internetbased resources [52-54]. Second, my team's research suggests that pregnant women are explicitly expressed interest in yoga for symptom management [55-57]. We have recently completed focus groups with pregnant women and new mothers during which we learned that many women do not receive encouragement from their obstetricians to engage in PA [57,58]. Moreover, the majority of women interviewed expressed interest in engaging yoga-based PA as a therapeutic modality for mental and physical well-being [57,58]. Third, my team's research with depressed non-pregnant women has shown that gentle yoga-based PA reduces ruminations and depressive symptoms and increases selfawareness of symptoms and SM of depression.55,56 Fourth, the practice of yoga during pregnancy appears to be safe, may improve quality of life, and may decrease maternal depressive symptoms, stress, ruminations, and anxiety [59-62]. Even in a gentle form as with yoga, PA appears to have important antidepressant and anxiolytic effects [44,63-66]. Findings from numerous studies suggest that yoga-based interventions may help decrease psychological and physical symptoms of depression in a variety of populations [52,67,68]. Fifth, yoga can contribute to positive experiences with PA, 55 which may, in turn, increase PA selfefficacy and enhance motivation for future PA behaviors [69]. Yoga may be a more appealing form of activity than conventional exercise and could even serve as a bridge to more vigorous activity, particularly in women who have Yoga for depression in pregnancy 6.

Traditionally not participated in PA or are overweight or deconditioned [17]. Finally, yoga provides an opportunity to be mindful of symptoms and adapt the practice according to those symptoms; for example, specific gentle breathing practices and movements may be advisable when one is experiencing predominantly depressive symptoms (e.g., lethargy, anhedonia) and others are more appropriate when anxious symptoms are predominant (e.g., ruminations) [50,56,70].

In conclusion, the findings from our research studies and those of other researchers are highly encouraging. In order to establish evidence-based recommendations for clinical practice, a continued close evaluation of the efficacy, comparative effectiveness, and costeffectiveness of prenatal yoga as a management strategy for chronic depressive symptoms during pregnancy is warranted. In addition, highquality research is required which not only evaluates psychobehavioral measures but also evaluates objective measures, such as biomarkers associated with stress and depression (e.g., inflammatory measures, epigenetic measures, among others), using established theoretical frameworks regarding yoga for depression50 and yoga for self-regulation [71-74]. Ultimately, prenatal yoga as a self-management option may provide a low-cost, accessible, and acceptable method for empowering women to manage current depressive symptoms, prevent future recurrences, and enhance maternal-child health. Yoga for depression in pregnancy 7.

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